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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/508,684 05/31/00 SORENSEN

E 9847-0035

EXAMINER

MMC2/0629

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ART UNIT	PAPER NUMBER
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2834

DATE MAILED:

06/29/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/508,684

Applicant(s)

SORENSEN ET AL.

Examiner

Joseph Waks

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 May 2000.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 28-55 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 50-53 is/are allowed.
- 6) ☒ Claim(s) 29-39, 54 and 55 is/are rejected.
- 7) ☒ Claim(s) 40-49 is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 May 2000 is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 7, 9.
- 18) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: _____.

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. PCT/SE98/01740, filed on September 9, 1998.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the second semiconducting layer being connected to a predetermined potential or earth and the sheath must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

The drawings are objected to because they include notes in foreign language. Correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. **Claims 29-32** are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Art Unit: 2834

Re claim 29, the potential of the semiconducting layer and the potential of the conductor are not described in the specification and it is not clear where and with respect to what the potentials are being taken.

Re claims 30-32, the equipotential surface formed by the second semiconducting layer is not described in the specification and it is not clear where and with respect to what the surface is equipotential.

5. **Claims 29-32**, are also rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. **Claims 28-36** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 28, line 5, “semiconducting” is indefinite since no element having the semiconducting properties is claimed, “the insulating layer” lacks antecedent basis.

In claim 29, “the first semiconducting layer” lacks antecedent basis.

In claim 30, “the second semiconducting layer” lacks antecedent basis.

In claim 31, “the second semiconducting layer” lacks antecedent basis.

In claim 34, line 2, “stands” is a typographic error.

In claim 35, “said first semiconducting layer”, “said solid insulating layer”, and “said second semiconducting layer” lack antecedent basis.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. **Claim 54** is rejected under 35 U.S.C. 102(b) as being anticipated by **Zocholl (US 4,914,386)**.

Zocholl discloses in Figures 1-8 and column 13, lines 25-34 invention as claimed: a method of measuring a voltage 32 and a current 34 in the electric field winding, providing the measurement results to a processor to calculate the rotor temperature.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. **Claims 28 and 29** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Elton et al. (US 4,853,565)** in view of **Harrold et al. (US 4,156,846)**.

Elton et al. disclose in Figures 1 and 2 an electrical winding having an electrical conductor 12 and a semiconducting layer 18 surrounding an insulation layer 16. However, **Elton et al.** fail to disclose the detecting circuit to detect an earth fault in the rotating field circuit.

Harrold et al. disclose in Figure 2 an electrical winding 14 having the detecting circuit 18, 19, 20 to detect an earth fault in the rotating field circuit for the purpose of early detection of earth fault before substantial overheating of the winding occurs.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design the electrical winding as taught by **Elton et al.** and to provide the detecting circuit to detect an earth fault in the rotating field circuit as taught by **Harrold et al.** for the purpose of early detection of earth fault before substantial overheating of the winding occurs.

12. **Claims 28-30, 34-36** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Breitenbach et al. (US 4,785,138)** in view of **Harrold et al. (US 4,156,846)**.

Breitenbach et al. disclose in Figures 1 and 2 an electrical winding having an electrical conductor 5 having a predetermined number of strands 6, and a first semiconducting layer 7 and a second semiconducting layer 9 surrounding an insulation layer 8. However, **Breitenbach et al.** fail to disclose the detecting circuit to detect an earth fault in the rotating field circuit.

Harrold et al. disclose in Figure 2 an electrical winding 14 having the detecting circuit 18, 19, 20 to detect an earth fault in the rotating field circuit for the purpose of early detection of earth fault before substantial overheating of the winding occurs.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design the electrical winding as taught by **Breitenbach et al.** and to provide the detecting circuit to detect an earth fault in the rotating field circuit as taught by **Harrold et al.** for the purpose of early detection of earth fault before substantial overheating of the winding occurs.

Art Unit: 2834

13. **Claims 31 and 32** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Breitenbach et al. (US 4,785,138)** in view of **Harrold et al. (US 4,156,846)** as applied to claim 30 above and further in view of **Elton et al. (US 4,853,565)**.

The combined winding discloses all elements essentially as claimed. However, it fails to disclose the second semiconducting layer being connected to a predetermined potential.

Elton et al. disclose in Figure 7 an electric current carrier having a second semiconducting layer 110 connected to earth for the purpose of bleeding off any static electric charge or an electrical charge developed on the exterior surface of the insulation 106.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design the combined winding and to provide the second semiconducting layer being connected to a predetermined potential as taught by **Elton et al.** for the purpose of bleeding off any static electric charge or an electrical charge developed on the exterior surface of the insulation.

14. **Claim 33** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Elton et al. (US 4,853,565)** in view of **Harrold et al. (US 4,156,846)** as applied to claim 28 above and further in view of **Elton et al. (US 4,622,116)**.

The combined winding discloses all elements essentially as claimed. However, it fails to disclose at least two adjacent winding layers having a substantially same coefficient of thermal expansion.

Elton et al. (US 4,622,116) disclose in Figures 1a- 2 and in column 7, lines 38-44 a winding having two adjacent layers 12 and 13 a substantially same coefficient of thermal

Art Unit: 2834

expansion for the purpose of withstanding without failure the process of thermal aging and cycling the winding system being exposed to.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design the combined winding and to provide two adjacent winding layers having a substantially same coefficient of thermal expansion as taught by **Elton et al. (US 4,622,116)** for the purpose of withstanding without failure the process of thermal aging and cycling the winding system being exposed to.

15. **Claims 37, 38** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Elton et al. (US 4,853,565)** in view of **Harrold et al. (US 4,156,846)** and **Shildneck (US 3,014,139)**.

Elton et al. disclose in Figures 1 and 2 an electrical winding providing a rotating field circuit and in Figure 7 a cable 100 having a current carrying conductor having a plurality of strands 102 an inner semiconducting layer 104, an insulating layer 106, and an outer semiconducting layer 110 surrounding the insulating layer 106. However, **Elton et al.** fail to disclose the winding formed of cable and the detecting circuit to detect an earth fault in the rotating field circuit.

Shildneck discloses in Figure 1 an electrical winding formed of cables for the purpose of reducing the thickness of the insulation by providing a conductor having a nearly uniform dielectric stress.

Harrold et al. disclose in Figure 2 an electrical winding 14 having the detecting circuit 18, 19, 20 to detect an earth fault in the rotating field circuit for the purpose of early detection of earth fault before substantial overheating of the winding occurs.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design the electrical winding as taught by **Elton et al.** and to provide the winding formed of cable as taught by **Shildneck** for the purpose of reducing the thickness of the insulation by providing a conductor having a nearly uniform dielectric stress.

It would have been further obvious to one having ordinary skill in the art at the time the invention was made to design the combined electrical winding and to provide the detecting circuit to detect an earth fault in the rotating field circuit as taught by **Harrold et al.** for the purpose of early detection of earth fault before substantial overheating of the winding occurs.

Re claim 38, the combined winding discloses the claimed invention except for the sheath. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the cable with a protective sheath since the examiner takes Official Notice that it is well known in the art to provide the cable with a sheath preventing from mechanical damage during installation and the selection of any known in the art cables with sheath would be within the level of ordinary skill in the art (see for example US patent No. 4,785,138 to Breitenbach et al.).

16. **Claim 39** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Elton et al.** (US 4,853,565) in view of **Harrold et al.** (US 4,156,846) and **Shildneck** (US 3,014,139) as applied to claim 37 above and further in view of **Williamson et al.** (US 3,593,123).

The combined system discloses all elements essentially as claimed. However, it fails to disclose an excitation system configured to supply a voltage to a field circuit and rotating with the field circuit and an injection and measuring unit arranged in the excitation system.

Williamson et al. disclose in Figures 1 and 2 an excitation system 9, 10 configured to supply a voltage to a field circuit 13 and rotating with the field circuit and injection and measuring unit 14, 22 arranged in the excitation system for the purpose of supplying the excitation current to the rotating field and detecting the fault current in the rotating field.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design the combined system and to provide the excitation system and the injection and measuring unit as taught by **Williamson et al.** for the purpose of supplying the excitation current to the rotating field and detecting the fault current in the rotating field.

17. **Claim 39** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Elton et al.** (US 4,853,565) in view of **Harrold et al.** (US 4,156,846) and **Shildneck** (US 3,014,139) as applied to claim 37 above and further in view of **Williamson et al.** (US 3,593,123).

The combined system discloses all elements essentially as claimed. However, it fails to disclose an excitation system configured to supply a voltage to a field circuit and rotating with the field circuit and an injection and measuring unit arranged in the excitation system.

Williamson et al. disclose in Figures 1 and 2 an excitation system 9, 10 configured to supply a voltage to a field circuit 13 and rotating with the field circuit and injection and measuring unit 14, 22 arranged in the excitation system for the purpose of supplying the excitation current to the rotating field and detecting the fault current in the rotating field.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design the combined system and to provide the excitation system and the injection and measuring unit as taught by **Williamson et al.** for the purpose of supplying the excitation current to the rotating field and detecting the fault current in the rotating field.

18. **Claim 58** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Elton et al.** (US 4,853,565) in view of **Shildneck** (US 3,014,139) and **Tanaka et al.** (EP 0 671 632).

Elton et al. disclose in Figures 1 and 2 an electrical winding providing a rotating field circuit and in Figure 7 a cable 100 having a current carrying conductor having a plurality of strands 102 an inner semiconducting layer 104, an insulating layer 106, and an outer semiconducting layer 110 surrounding the insulating layer 106. However, **Elton et al.** fail to disclose the winding formed of a cable, the means for supplying an injection voltage, means for measuring a resulting error current from the injection voltage and forming the rectified absolute values of the injection voltage and the resulting error current, and means for transmitting the values to the monitoring means.

Shildneck discloses in Figure 1 an electrical winding formed of cables for the purpose of reducing the thickness of the insulation by providing a conductor having a nearly uniform dielectric stress.

Tanaka et al. disclose in Figures 1 and 2 the means 1 for supplying an injection voltage, means 4 for measuring a resulting error current from the injection voltage and forming the rectified absolute values of the injection voltage and the resulting error current, and means for transmitting the values to the monitoring means (Re column 9, lines 29-40) for the purpose of detecting a ground fault with a sensitivity that is not affected by a variation of a predetermined DC voltage.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design the electrical winding as taught by **Elton et al.** and to provide the

Art Unit: 2834

winding formed of cable as taught by **Shildneck** for the purpose of reducing the thickness of the insulation by providing a conductor having a nearly uniform dielectric stress.

It would have been further obvious to one having ordinary skill in the art at the time the invention was made to design the combined electrical winding and to provide the means for supplying an injection voltage, means for measuring a resulting error current from the injection voltage and forming the rectified absolute values of the injection voltage and the resulting error current, and means for transmitting the values to the monitoring means as taught by **Tanaka et al.** for the purpose of detecting a ground fault with a sensitivity that is not affected by a variation of a predetermined DC voltage.

Allowable Subject Matter

19. **Claims 50-53** are allowed.

The feature of the rotating field circuit having the earth fault detecting circuit comprising a wireless communication unit configured to transmit the absolute values from the rotating rectifier to the stationary calculating unit configured to monitor the resistance of the field winding to earth, in combination with the other limitations present, are neither disclosed or taught by the prior art of record.

20. **Claims 40-49** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The feature of the rotating field circuit having the earth fault detecting circuit comprising a wireless communication unit configured to transmit the absolute values from the rotating rectifier to the stationary calculating unit configured to monitor the resistance of the field

Art Unit: 2834

winding to earth, in combination with the other limitations present, are neither disclosed or taught by the prior art of record.

Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Communication

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Waks whose telephone number is (703) 308-1676. The examiner can normally be reached on Monday through Thursday 8 am to 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor R Ramirez can be reached on (703) 308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-1341 for regular communications and (703) 305-1341 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.



JOSEPH WAKS
PRIMARY PATENT EXAMINER
TC-2800

JW
June 27, 2001